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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/749,921	12/29/2000	Robert J. O'Donnell	015290-465	6804

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EXAMINER
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TRAN, BINH X

ART UNIT	PAPER NUMBER
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1765

DATE MAILED: 04/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/749,921

Applicant(s)

O'DONNELL ET AL.

Examiner

Binh X. Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 8,10-18 and 24-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 25 and 29 is/are allowed.
- 6) ☒ Claim(s) 8,10-18,24,26-28 and 30-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1-24-2005 has been entered.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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4. Claims 8, 10, 13-18, 24, 26, 30, 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shamouilian et al. (US 5,606,485) in view of Clarke et al. (US 6,120,854).

Respect to claim 8, Shamouilian ('485) discloses a component (20) of semiconductor processing equipment, the component (20) comprising a substrate (28) having a surface and a polymer coating (22: 22a and/or 22b) on the surface of the substrate (28) and forming an outer surface of the component, the outer surface being resistant to plasma erosion and corrosion, wherein the component (20) is component other than a chamber liner (See col. 4 lines 23-67, col. 7 lines 10-20, Fig 1-3).

Shamouilian ('485) fails to disclose that the polymer material is liquid crystal polymer. Clarke discloses that liquid crystal polymer has superior property including extremely high flow, significant melt strength than regular polymer (col. 2 lines 35-45). It would have been obvious to one having ordinary skill in the art, at the time of invention, to modify Shamouilian ('485) in view of Clarke by using liquid crystal polymer because it is capable of withstanding high temperature due to significant melt strength property.

Respect to independent claim 13, Shamouilian fails to disclose the polymer is plasma sprayed liquid crystal polymer. However, Shamouilian ('485) clearly teaches to spray polymer material on the substrate (col. 7 lines 29-34). Clarke teaches to use plasma sprayed liquid crystal polymer because this technique is capable of forming a uniform surface (col. 4 lines 55-67). It would have been obvious to one having ordinary skill in the art, at the time of invention, to modify Shamouilian ('485) in view of Clarke by

using plasma sprayed liquid crystal polymer because this technique is capable of forming a uniform surface.

Respect to claim 10, Clarke disclose the substrate (28) comprises aluminum (col. 6 lines 50-52). Respect to claims 14, 24 and 33, Shamouilian ('485) discloses the component (20) is an electrostatic chuck. Respect to claim 15, Shamouilian ('485) discloses the polymer (22a and/or 22b) comprises a preformed sheet cover the surface of the substrate (28) (Fig 1). The liquid crystalline polymer limitation in claim 15 has been discussed above under Clarke's reference.

Respect to claim 16, Shamouilian ('485) discloses the component comprise a roughen surface that has been subjected to a surface roughen treatment and is in contact with the polymer applied on the surface (col. 6 lines 50-64). Respect to claim 17, Shamouilian ('485) discloses the polymer material (22) includes a filler (col. 5 lines 33-41). The liquid crystalline polymer limitation in claim 17 has been discussed above under Clarke's reference.

Respect to claim 18, Shamouilian ('485) discloses a plasma chamber (40) comprise at least one component (20). Respect to claims 26 and 30, Shamouilian ('485) discloses at least intermediate layer (22b or 24) between the surface of the substrate (28) and the coating (22a).

5a. Claims 11, 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shamouilian ('485) in view of Clarke as applied to claim 8 above, and further in view of Shamouilian (US 2002/0036881).

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5b. Claims 31-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shamouilian ('485) in view of Clarke as applied to claim 8 above, and further in view of Shamouilian (US 2002/0036881).

Respect to claims 11, 27-28, 31-32 Shamouilian ('485) fails to disclose that the substrate comprises alumina (claim 11), or refractory metal (claims 27, 31) or ceramic material selected from the group consisting of silicon carbide, silicon nitride, boron carbide, and boron nitride (claims 28, 32). However, Shamouilian ('485) clearly discloses the base of the chuck (i.e. the substrate) comprise aluminum (col. 6 lines 51-56). In a semiconductor apparatus, Shamouilian ('881) discloses the chuck have a base comprises either aluminum, or aluminum oxide (aka alumina), refractory metal (i.e. titanium, tungsten), or ceramic material selected from the group consisting of silicon carbide, silicon nitride, boron carbide, and boron nitride (page 3 paragraphs 0037). It would have been obvious to one having ordinary skill in the art, at the time of invention, to modify Shamouilian ('485) and Clarke in view of Shamouilian ('881) by using alumina, refractory metal or ceramic material selected from the group consisting of silicon carbide, silicon nitride, boron carbide, and boron nitride because equivalent and substitution of one for the other would produce an expected result.

6. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shamouilian (US 5,606,485) in view of Clarke as applied to claim 10 above, and further in view of Whitlock et al. (US 4,736,087).

Respect to claim 12, Shamouilian fails to disclose the component includes an anodized surface. However, Shamouilian clearly discloses the component is a chuck

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comprises aluminum. In a semiconductor apparatus, Whitlock teaches to use either aluminum or anodized aluminum for the chuck (col. 3 lines 68 to col. 4 line 3). It would have been obvious to one having ordinary skill in the art, at the time of invention, to modify Shamouilian ('485) and Clarke in view of Whitlock by using anodized aluminum because equivalent and substitution of one for the other would produce an expected result.

***Allowable Subject Matter***

7. Claims 25, 29 are allowed.
8. The following is a statement of reasons for the indication of allowable subject matter: The reason for allowance was discussed in previous office action.

***Response to Arguments***

9. Applicant's arguments with respect to claims 8, 10-18, 24, 26-28, 30-33 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Binh X. Tran whose telephone number is (571) 272-1469. The examiner can normally be reached on Monday-Thursday and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on (571) 272-1465. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Binh Tran*

Binh X. Tran